



CITY OF GLENDALE, CALIFORNIA  
Management Services Department  
INTERNAL AUDIT

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August 21, 2013

REPORT #: 2014-01

Harold Scoggins, Fire Chief  
Fire Department

Dear Chief Scoggins,

In accordance with Internal Audit's FY 2012-13 audit work plan, Internal Audit has completed the Fire Department Operations Section Workload Analysis. The objective of the analysis was to inventory all of the jobs, tasks, special programs, assignments and requirements of all personnel within the Operations Section, with the exception of the Battalion Chiefs and the Staff Assistants. Internal Audit worked as a team with the Fire Department to perform this analysis.

The methodology used for the workload analysis included categorizing the workload within a 24 hour shift for emergency call responses and assignments/duties during the FY 2011-12.

- The average number of emergency call responses and the average length of time spent responding to emergency calls was obtained from the Verdugo Fire Communications Center for each apparatus.
- The average length of time spent working on assignment/duties was obtained by surveying a representative from each fire station.

Enclosed is the final report for the Fire Department Operations Section Workload Analysis.

Internal Audit would like to thank you and your staff for the support and assistance provided to us during the course of the audit.

Should you have any questions, please feel free to contact Naira Akopyan or myself.

Thank you,

A handwritten signature in cursive script, reading "Michele Flynn".

Michele Flynn,  
City Auditor

Enclosure

cc: Yasmin Beers, Assistant City Manager  
Robert Doyle, Deputy Fire Chief  
Robert Elliot, Director of Finance  
Gregory Fish, Fire Battalion Chief  
Ronald Gulli, Fire Battalion Chief  
Thomas Marchant, Fire Battalion Chief  
Scott Ochoa, City Manager  
Thomas Propst, Fire Battalion Chief  
Tyler Richardson, Firefighter Paramedic  
Vince Rifino, Fire Battalion Chief  
City Council  
Audit Committee

# **Glendale Fire Department Operations Section Workload Analysis**

**August 21, 2013**

**Naira Akopyan, *Internal Auditor***  
**Tyler Richardson, *Firefighter Paramedic***

## Background

To complete the fourth goal identified in the City of Glendale Fire Department's 2011-2016 Strategic Plan, Internal Audit was asked to assist with the development of a workload analysis for every classification and program in the Fire Operations Section for the purpose of prioritizing work load distribution. Internal Audit worked as a team with the Fire Department to perform this analysis. The position of the Battalion Chief or the Staff Assistant was not included in the scope of the analysis due to the uniqueness of their job duties. As an initial step to determine the workload for each position, the normal work schedule for the Operations Section was categorized into the following sections:

- Emergency call responses
- Assignments/duties

The Verdugo Fire Communications Center was contacted to obtain actual data for all calls responded to within FY 2011-12. This information was extracted from the computer dispatch system. A representative from each fire station was surveyed to collect data for work performed outside of call response. Each individual responding to the survey estimated the length of time to complete each task. An analysis of the survey responses was performed by the project team to ensure the reasonableness of the data. Revisions were made where appropriate and discussed with survey respondents. Once this analysis was complete, the survey responses were combined with the call data to arrive at the workload for each position.

Due to a change in the operations in Emergency Medical Services (EMS) implemented in January 2012, the data for emergency call response has been separated and presented in six month increments: from July 1, 2011 through December 31, 2011, and from January 1, 2012 through June 30, 2012. The intent was to reveal the impact of the operational change on the Operations Section. The change replaced Rescue Ambulances (RA) with Basic Life Support units (BLS). The RA unit was an ambulance with two assigned firefighter paramedics at all times; the BLS unit is an ambulance with assigned ambulance operators and no firefighter paramedics.

The BLS unit is utilized for transporting patients to the nearest hospital that do not require sworn firefighter paramedics to treat the patient (BLS calls). The new structure has assigned the firefighter paramedics to an engine or a truck and is dispatched with the BLS unit on EMS calls. During critical calls (Advanced Life Support or ALS calls), the paramedics ride in the BLS unit to treat patients while transporting them to the hospital. The apparatus that the paramedic is assigned to (engine or truck) follows the BLS unit to the hospital to pick up and return the paramedics back to their assigned apparatus.

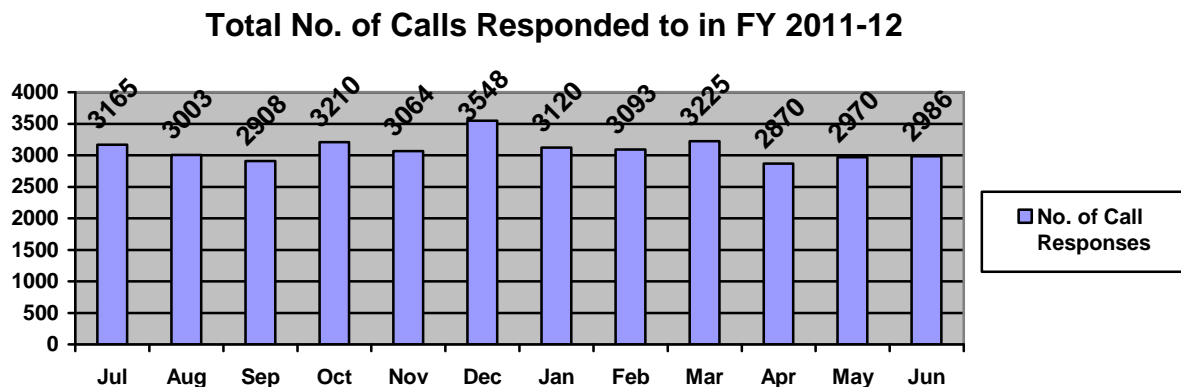
The Fire Department has in operation engines, trucks, water tenders, HAZMAT (Hazardous Materials) unit, USAR (Urban Search and Rescue) unit, Air Utility unit (Station 28), patrol units, and BLS units. The Department normally assigns two firefighters (some of whom are paramedics), one fire engineer, and one captain to all engines and trucks. The assignments may vary based on the available licensed paramedics at each fire station. Each BLS unit is assigned two ambulance operators who are non-sworn hourly positions. The HAZMAT, USAR, Air Utility and patrol vehicles are manned by personnel from their assigned stations. The workload of each position varies depending on the apparatus that they are assigned to and the manner in which that apparatus is dispatched for calls.

The Fire Operations Section operates in three 24 hour shifts: shift A, B, and C. Each shift begins and ends at 7:30 a.m. The first hour of a shift begins with a debriefing with the outgoing personnel and checking equipment, and continues with responding to emergency calls and completing assignments/duties.

### Emergency Call Response

Emergency call response takes priority next to all duties assigned to the Fire Operations Section. The amount of time spent on call response varies among stations due to location and population density near each station. The following chart shows the total number of emergency calls responded to by month.

**Chart 1**



As the chart reveals, the number of emergency calls responded to is fairly consistent throughout the fiscal year with slight increases in certain months.

To provide further breakdown of this information, the following table identifies the number of emergency responses according to the station and unit responding to the calls. Each unit, whether engine, truck, or BLS, is unique and provides a different form of service to an emergency situation, hence the manner in which each is dispatched is dependant upon the scenario and necessities of the call received. It should be noted that multiple apparatuses may respond to one emergency call, dependent upon the nature of the incident. This table does not reflect the number of emergency calls received; it reflects the total number of responses by each apparatus.

**Table 1**

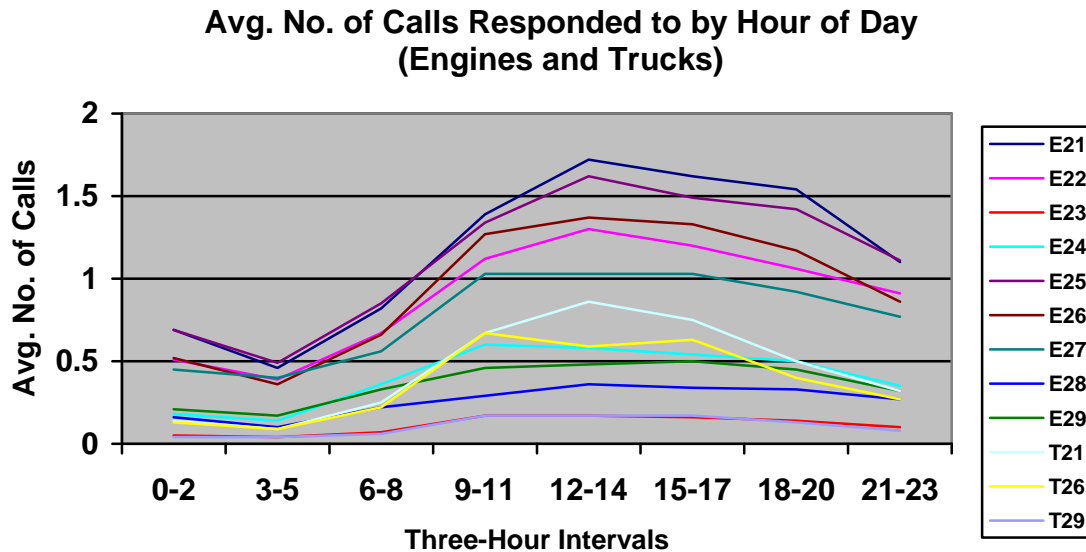
**No. of Emergency Responses in FY 2011-12**

<b>Station</b>	<b>Unit Type*</b>	<b>Total</b>	<b>7/1/11 – 12/31/11</b>	<b>1/1/12 – 6/30/12</b>
21	BC	562	293	269
	RA	2,099	2,001	98
	BLS	3,005	1,208	1,797
	Engine	3,417	1,719	1,698
	Truck	1,308	625	683
	OWT	1	1	0
22	BLS	792	0	792
	Engine	2,622	1,246	1,376
	USR	27	14	13
23	Engine	328	147	181
	Patrol	4	2	2
24	Engine	1,186	598	588
	HM	51	32	19
25	RA	1,859	1,769	90
	BLS	2,819	1,085	1,734
	Engine	3,297	1,631	1,666
26	RA	1,690	1,607	83
	BLS	1,533	0	1,533
	Engine	2,765	1,336	1,429
	Truck	1,096	543	553
27	BLS	726	92	634
	Engine	2,260	1,101	1,159
	WT	4	2	2
28	Engine	755	384	371
	Patrol	1	0	1
29	RA	808	776	32
	BLS	767	0	767
	Engine	1,065	533	532
	Truck	315	153	162
<b>TOTAL</b>		<b>37,162</b>	<b>18,898</b>	<b>18,264</b>

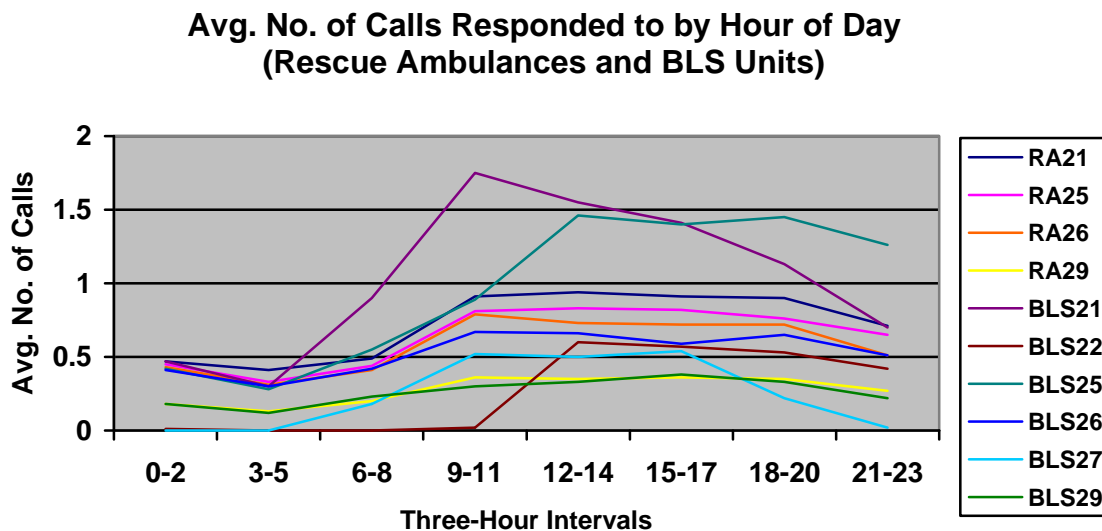
\*Unit Type - BC: Battalion Chief, BLS: Basic Life Support, HM: HAZMAT, RA: Rescue Ambulance, WT: Water Tender, OWT: OES Water Tender (Owned by the California Governor's Office of Emergency Services), USR: Urban Search and Rescue

The following two charts show the average number of emergency call responses by hour of day. The data has been grouped into three hour intervals and begins with midnight at the initial point. The first chart shows call responses for engines and trucks; the second chart shows call responses for Rescue Ambulances and BLS units. It should be noted that during the period reviewed BLS22 and BLS27 were only available for 12 hours a day. BLS22 was available from 12:00 pm to 12:00 am; BLS27 was available from 7:30 am to 7:30 pm. The other BLS units were available to respond to calls 24 hours a day with two 12 hour shifts.

**Chart 2**



**Chart 3**

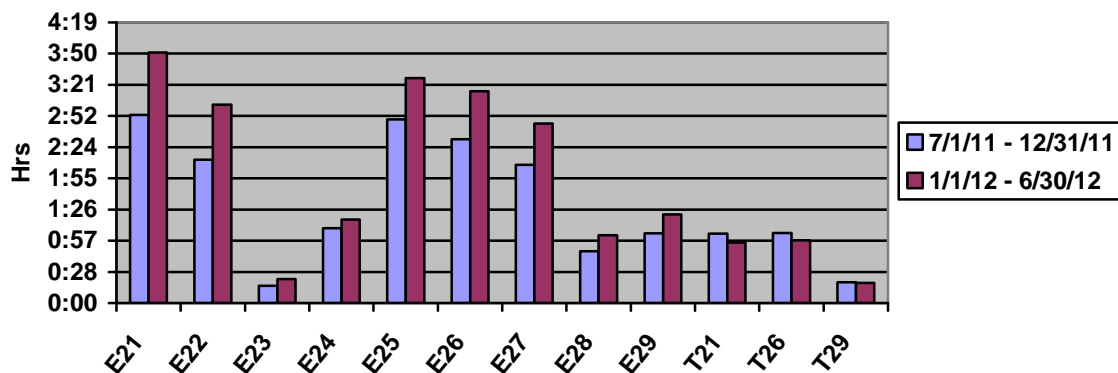


The data identifies that the busiest time of the day begins roughly around 10:00 a.m. and continues until about 8:00 p.m.

The following three charts identify the average amount of time that is spent responding to calls per day. The data has been presented in six month increments to reflect the operational change in January 2012. The first chart reveals data for engines and trucks. The second chart reveals data for Rescue Ambulances and BLS units. The third chart reveals data for apparatuses other than engines, trucks, or ambulance units. The apparatuses reflected in the third chart were not impacted by the operational change, however for consistency purposes the data has also been presented in six month increments.

**Chart 4**

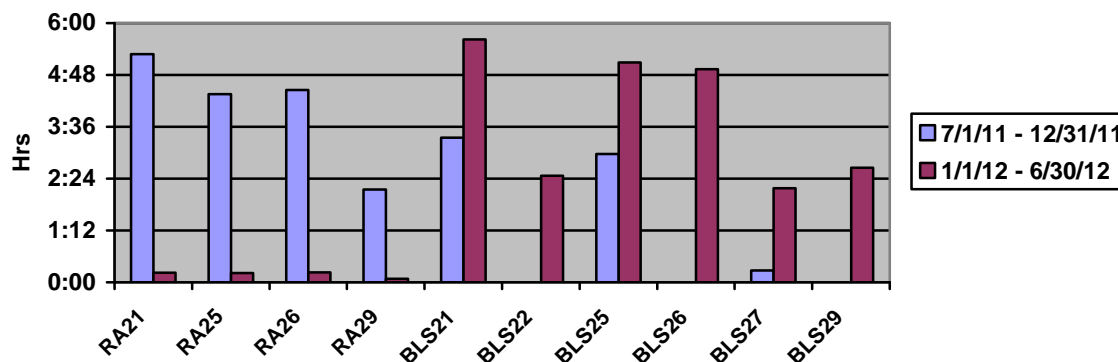
**Avg. Length of Time Spent Responding to Calls per Day  
For Engines & Trucks (in hours)**



It should be noted that BLS units 21 and 25 were included in the initial phase of the change in operations for Emergency Medical Services and were placed into operation beginning July 2011; hence the data in the following chart reflects the emergency call response for these units during this period. BLS unit 27 joined the operation in November 2011. The Rescue Ambulances ran parallel with the BLS units and transitioned to BLS units 22, 26, and 29 beginning January 2012.

**Chart 5**

**Avg. Length of Time Spent Responding to Calls per Day  
For Rescue Ambulances & BLS Units (in hours)**

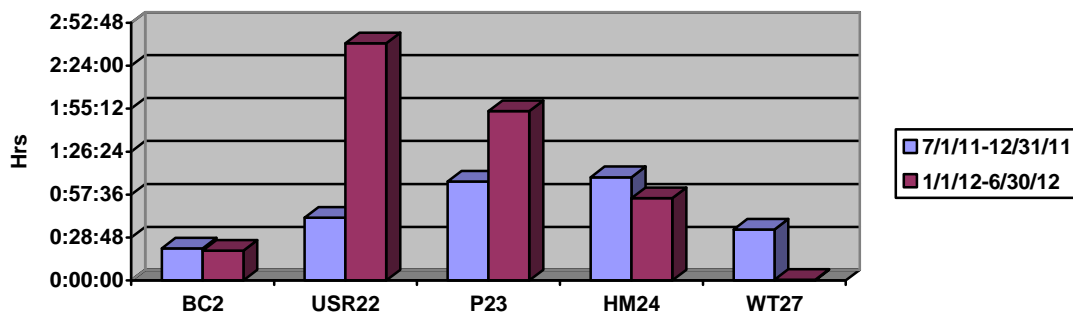


The average amount of time spent responding to calls per day beginning January

2012 for BLS Units ranges anywhere from 2 hours and 10 minutes to over 5.5 hours.

**Chart 6**

**Total Length of Time Spent Responding to Calls in FY11-12  
For Other Apparatuses (in hours)**



Note: BC2: Battalion Chief's vehicle, USR: Urban Search and Rescue, P: Patrol, HM: HAZMAT, WT: Water Tender. Due to the minimal number of calls responded to, when length of time spent responding to calls is averaged per day for WT27 for 1/1/12 – 6/30/12, the result is a zero. OWT: OES Water Tender (Owned by the California Governor's Office of Emergency Services) is another apparatus that responded to one call during 7/1/11-12/31/11 which lasted 12 hours 34 minutes. Since this length of time is an outlier when compared to the other apparatus, this apparatus was removed from the chart above. OESWT did not respond to any calls during 1/1/12 – 6/30/12.

Fire stations that have additional apparatus other than an engine, truck, or a BLS Unit such as those mentioned in the above chart do not have additional personnel assigned to those stations. The same group of personnel assigned to these stations is responsible for responding to calls that require the specific apparatuses. The type of call received determines the apparatus that will respond.

### Assignments/Duties

As part of the daily work schedule, the Fire Operations personnel have assignments/duties they are to complete during their shift. These assignments are scheduled during the normal work schedule of 7:30 a.m. and 5:30 p.m. which overlaps approximately 8.5 hours of the busiest time of the day for emergency calls as noted on page 5. At times, there are drills that are scheduled after 6:00 p.m. if they have to be performed in the evening.

It should be noted that the operational change in January of 2012 did not impact the assignments/duties unrelated to emergency call response, hence the data provided here has not been presented in six month increments.

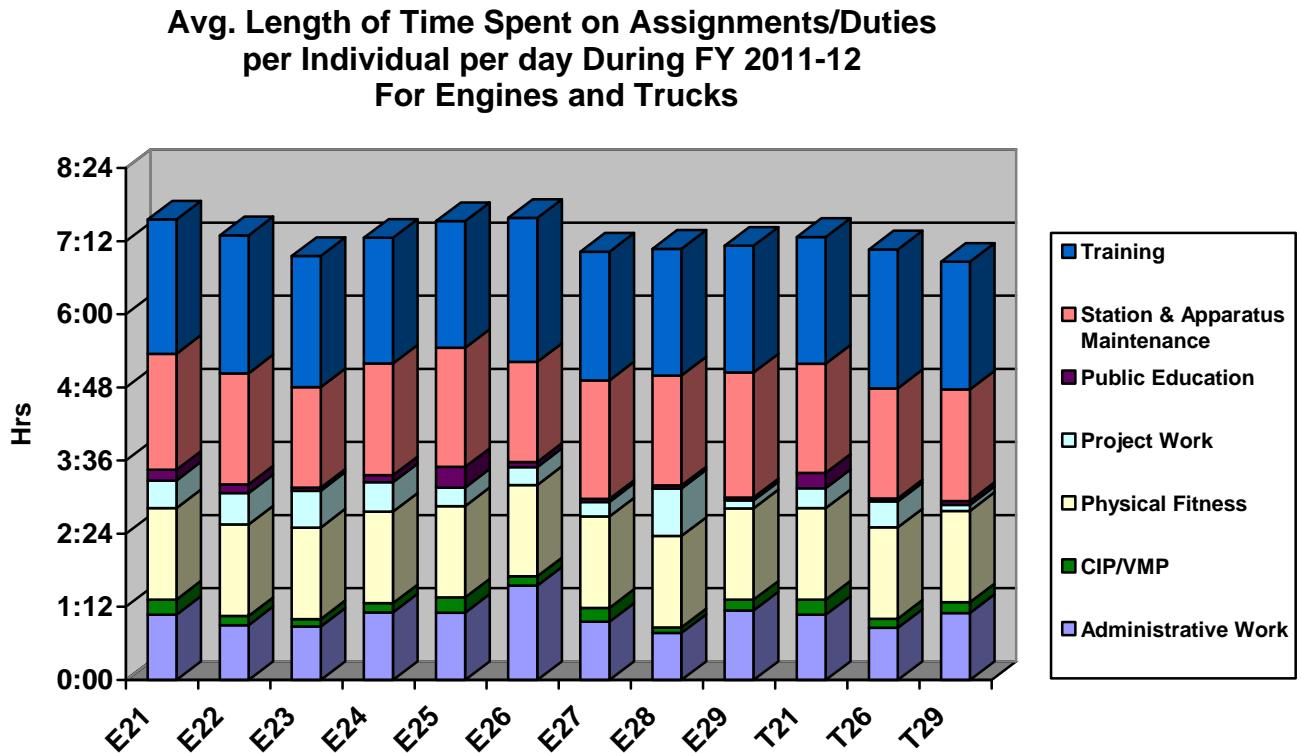
A list of assignments and the approximate length of time to complete them for each individual during FY 2011-12 was obtained through a questionnaire that was sent to and completed by a designated individual at each fire station. The responses to the questionnaire were documented in a spreadsheet and placed



into categories for each company. To arrive at the average length of time an individual spends working on assignments within each category, the project team divided the length of time for each company by the number of individuals assigned to each company, i.e. four for engines and trucks and two for BLS units.

The following chart identifies the categories that were utilized as well as the average approximate length of time spent in each category. The detailed list of all assignments included in the categories can be found in *Appendix A*.

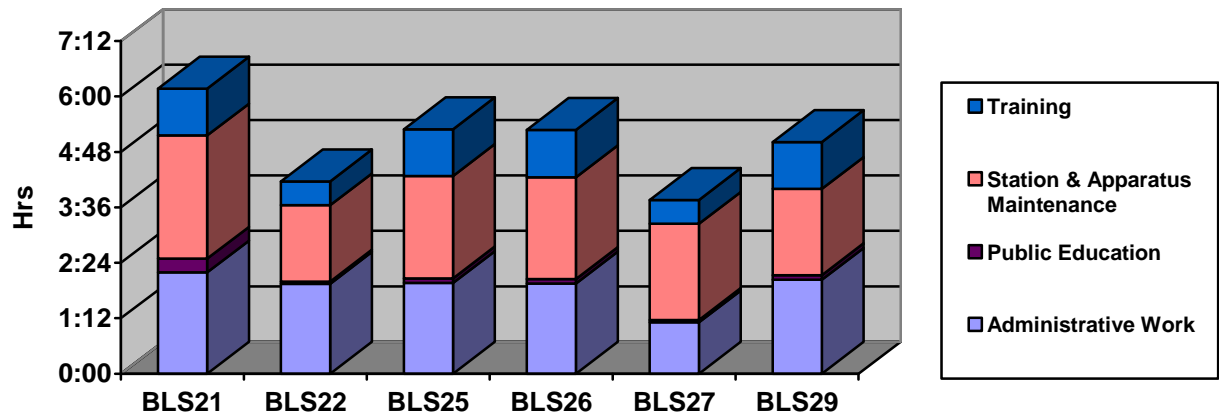
**Chart 7**



	E21	E22	E23	E24	E25	E26	E27	E28	E29	T21	T26	T29
<b>Administrative Work</b>	1:04	0:54	0:52	1:06	1:06	1:32	0:57	0:46	1:08	1:04	0:51	1:06
<b>CIP/VMP</b>	0:15	0:09	0:07	0:09	0:15	0:09	0:13	0:05	0:10	0:15	0:09	0:10
<b>Physical Fitness</b>	1:30	1:30	1:30	1:30	1:30	1:30	1:30	1:30	1:30	1:30	1:30	1:30
<b>Project Work</b>	0:27	0:31	0:36	0:29	0:18	0:17	0:14	0:46	0:07	0:19	0:25	0:05
<b>Public Education</b>	0:10	0:08	0:03	0:07	0:20	0:04	0:03	0:03	0:03	0:15	0:03	0:04
<b>Station &amp; Apparatus Maintenance</b>	1:54	1:49	1:39	1:50	1:57	1:38	1:56	1:48	2:03	1:47	1:48	1:49
<b>Training</b>	2:12	2:15	2:09	2:03	2:04	2:21	2:06	2:04	2:04	2:04	2:16	2:05
<b>TOTAL (in hrs)</b>	<b>7:33</b>	<b>7:20</b>	<b>6:57</b>	<b>7:16</b>	<b>7:31</b>	<b>7:34</b>	<b>7:01</b>	<b>7:06</b>	<b>7:07</b>	<b>7:16</b>	<b>7:03</b>	<b>6:51</b>

Chart 8

**Avg. Length of Time Spent on Assignments/Duties  
per Individual per day During FY 2011-12  
For BLS Units**



	BLS21	BLS22	BLS25	BLS26	BLS27	BLS29
Administrative Work	2:11	1:56	1:57	1:57	1:06	2:01
Public Education	0:18	0:03	0:06	0:06	0:03	0:06
Station & Apparatus Maintenance	2:40	1:39	2:13	2:12	2:05	1:52
Training	1:00	0:30	1:00	1:01	0:30	1:00
<b>TOTAL (in hrs)</b>	<b>6:10</b>	<b>4:09</b>	<b>5:17</b>	<b>5:16</b>	<b>3:45</b>	<b>5:00</b>

Note: BLS22 and BLS27 are available for 12 hours in a day.

The responses to the questionnaire identified the frequency of the assignments as daily, weekly, monthly, quarterly, and annual. Hence, for the purposes of the workload analysis, the project team calculated the daily average length of time. It should be noted that responding to emergency calls while working on assignments may lengthen the amount of time spent completing assignments since the apparatus must leave the current location to answer an emergency call and return.

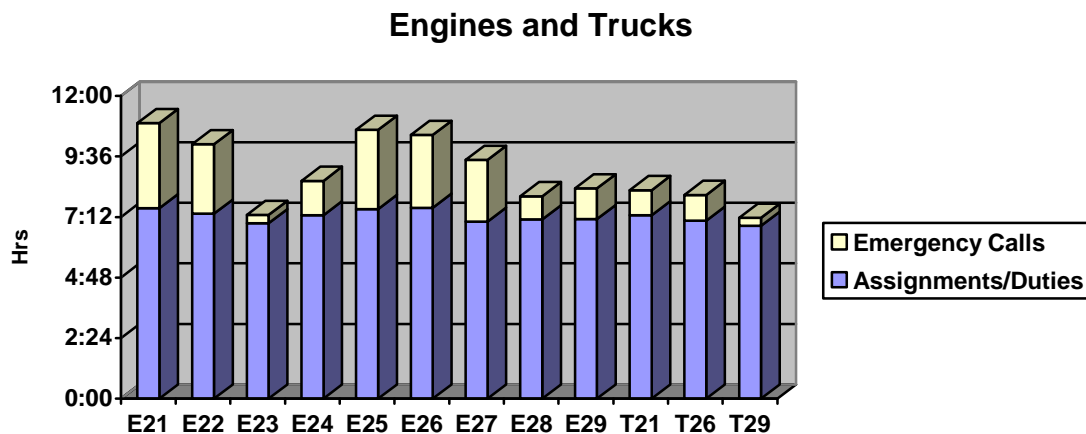
### Summary of Results

The average workload analysis for an individual assigned to an apparatus in the Fire Operations Section has been determined by combining the average length of time spent responding to emergency calls and the average length of time spent working on assignments/duties on a daily basis. Since a company of four individuals responds to an emergency call together, the length of time one individual spends responding to an emergency call is the same as the length of time the entire company spends on that call. The average workload was determined for an average individual assigned to an apparatus during one 24

hour shift. The time remaining in one shift after the average length of time spent responding to emergency calls and working on assignments/duties is considered non-assigned work time.

The following chart provides a detail breakdown of the daily average length of time spent responding to emergency calls and the daily average length of time spent working on assignments/duties per individual during FY 2011-12 for engines and trucks. Since the engine company responds to emergency calls that require the special apparatuses (USAR, patrol, HAZMAT, water tender) at stations 22, 23, 24, and 27, the average length of time spent responding to such calls has been added to the time for engines. The information has been presented in hours.

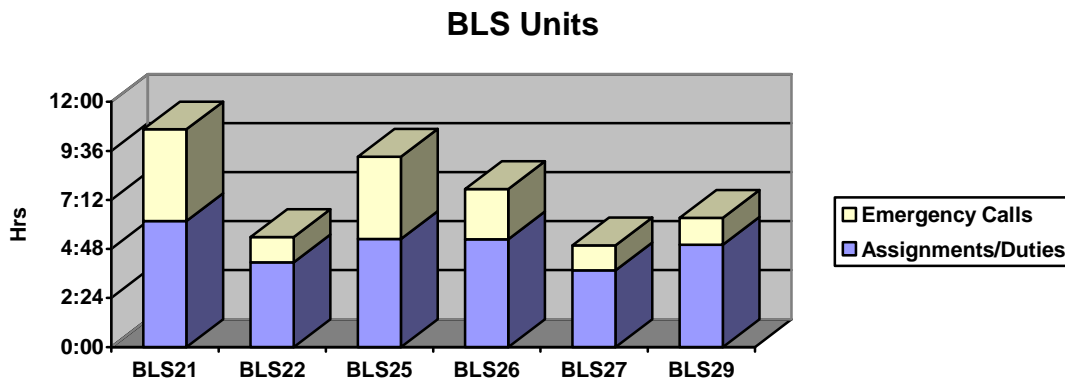
**Chart 9**



	Emergency Calls	Assignments/Duties	TOTAL
E21	3:22	7:33	10:55
E22	2:45	7:20	10:05
E23	0:20	6:57	7:17
E24	1:22	7:16	8:38
E25	3:08	7:31	10:40
E26	2:53	7:34	10:28
E27	2:26	7:01	9:28
E28	0:55	7:06	8:02
E29	1:13	7:07	8:20
T21	0:59	7:16	8:16
T26	1:01	7:03	8:05
T29	0:18	6:51	7:10

The chart on the following page provides a detail breakdown of the daily average length of time spent responding to emergency calls and the daily average length of time spent working on assignments/duties per individual during FY 2011-12 for each BLS unit. The information has been presented in hours.

Chart 10



	Emergency Calls	Assignments/Duties	TOTAL
BLS21	4:29	6:10	10:39
BLS22	1:13	4:09	5:23
BLS25	4:01	5:17	9:18
BLS26	2:28	5:16	7:44
BLS27	1:13	3:45	4:58
BLS29	1:19	5:00	6:20

## Conclusion

Fire Operations personnel on engines and trucks spend approximately seven to 11 hours of a 24 hour shift responding to emergency calls and working on assignments/duties. Ambulance Operators on BLS Units work in an hourly capacity and spend approximately five to 11 hours responding to emergency calls and working on assignments/duties. BLS21, 25, 26, and 29 are assigned two 12 hour shifts and are available to respond to emergency calls 24 hours a day; for the period reviewed BLS22 and 27 were assigned one 12 hour shift and were available from 12:00 pm to 12:00 am and 7:30 am to 7:30 pm, respectively. The number of hours spent responding to emergency calls and working on assignments/duties for these two units were based on one 12 hour shift.

The charts presented in this report do not capture the travel time returning from an emergency call or an assignment away from the station that the company is "available on radio". This length of time is not included in the emergency call response or in the assignments/duties. This time varies among stations based on the number of emergency call responses and the assignments that must be completed away from the station, however based on discussions with Operations staff, the total available on radio time may approximately equate to 1-2 hours in a day, depending on the station. This time is influenced by the location of the station, destination of the call, location of hospital transported to, and assignment that is being completed. Since the operational change in January 2012, the engines must now travel to the hospital for ALS calls to pick up the paramedics who accompany the patient to the hospital; hence the travel time to return to the

station for engines has increased. This travel time may vary depending on the distance between the station and the hospital that they transport to.

The remaining time in the shift is considered non-assigned work time and is typically used for tasks such as replenishing supplies used during emergency calls, debriefing, and preparing personal protective equipment for the next emergency call. Such tasks vary from day to day, depending on the nature of emergency calls, and cannot be planned or predicted ahead of time.

## Appendix A

### Examples of Assignments/Duties

<b>Administrative Work</b>		
Ambulance driver certificate	Faster requests	Read dept emails/memos
Apparatus log book	FSR's, ESR's, hose records	Records report to BC
Arson Investigation	GFD apparel	Review accident & injury reports
Arson report writing	HAZMAT continuing education	SCBA level 2 technician certification
Background Investigations	Inspection records	Station wall map development
Captains meetings, green cell	Line-up	TB test
Company records	Log book	Telestaff
Daily records	Mail run	Training meetings
Drill reports	Morning log-in and shift prep	Training records
Earthquake maps	Narcotic log book	Type III training & policy lead
Employee evaluation	NFIRS	Wellness program
EMS captain	Order station supplies	Writing of Captain Exam
EMS forms	Ordering supplies for BLS Unit	Writing of Engineer Exam
EMS order	OSHA respiratory questionnaire	
EMT continuing education	Paramedic continuing education	
<b>CIP/VMP</b>		
Company Inspection Program		
Vegetation Management Program		
<b>Physical Fitness</b>		
Physical Fitness		
<b>Project Work</b>		
"A" shift training captain	Hydrostatic Testing of SCBA bottles	SCBA program paperwork
Annual bench test of SCBA	Ladder project	Shift fire investigator
Apparatus committee	Library project	SOG committee
Awards committee	Paramedic program – update clipboard sheet	Strategic plan #1
Brush gear evaluation	PPE committee	Strategic plan #2
CPR coordinator	Pre-fire plan committee	Strategic plan #3
EMS committee	Pump testing program	Strategic plan #4
Facilities and apparatus committee	Repairs and maintenance of SCBA units	Strategic plan #5
Fire investigation program	Safety clothing program manager	Strategic plan #7
HAZMAT project duties	SCBA cylinder fill station	Strategic plan #8
HAZMAT equipment procurement/fabrication	SCBA equipment maintenance	Strategic planning team
HAZMAT policies	SCBA face mask fit test machine	"C" shift training captain
Hose program	SCBA face mask fit testing	"B" shift training captain
<b>Public Education</b>		
CPR classes	Glendale Christmas families	Relay for life
Explorer program – meetings	Glendale healthy kids	Spark of love coordinator
Explorer program – recruitment	MDA fill the boot	Station tours
Fire service day coordinator	Public education	

<b>Station &amp; Apparatus Maintenance</b>		
Apparatus change-over for maintenance	Gator maintenance	Regional Training Center
USAR equipment maintenance	Generator, chain saw run	Run equipment
Calibrate all monitors	HAZMAT vehicle maintenance	Shift relief and equipment checkout
Chief's inspection	HAZMAT equipment maintenance	Small engine repair
Clean shop, floors	Maintain apparatus floor/bay	Station maintenance
Drug log	Meal preparation	Station cleaning
Equipment check	Nozzle repair	Test level A suits
Apparatus daily check	O2 cylinder fill station	Trailer maintenance
Defibrillator check out	Pharmaceutical rotation	Type III engine fabrication
Fire roads	Preparation for Chief's inspection	USAR vehicle maintenance
Fuel pump inspection	Apparatus pump test	Wash and maintain apparatus
<b>Training</b>		
Ambulance operator training	HAZMAT first responder operations training	Search and rescue
Brush/shelter training	HAZMAT training	Sexual harassment training
CISM training	High rise	Smith driver
Company schools and drill	Knots and rope systems	Swift water rescue
District familiarizations	Probationary training	Truck company operations
Driver training	Proctoring engineer exam	USAR – Area C Drill
Emergency Medical Services Training	Proctoring probationary exam	USAR – continuing education drills
Engine company operations	Provide HAZMAT training to dept personnel	USAR – OSHA training for confined space
Engineer Training with multiple lines and supply lines	Radio training	USAR training
Flashover trainer	Rapid Intervention (RIC) training	Ventilation
Flashover training	Relay pumping, water shuttle	Wildland operations